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| 10/599,151   | 09/21/2006  | Masaki Yanagioka     | Q97138              | 5036             |
| 23373 7590 08/05/2008<br>SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| USELDING, JOHN E   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/599,151

**Applicant(s)**

YANAGIOKA, MASAKI

**Examiner**

John Uselding

**Art Unit**

4171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISD)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_
- Paper No(s)/Mail Date 9/21/2006

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: Several of the units of measurement used throughout the specification for the compressed DBP absorption are recited incorrectly. The units should be ml/100g (paragraph 0044).

Appropriate correction is required.

### ***Claim Objections***

2. Claim 8 is objected to because of the following informalities: Claim 8 recites "CATB" but in the applicant's specification CTAB is used in the hydrogen desorption equation. Appropriate correction is required.

3. Claim 11 is objected to because of the following informalities: Claim 11 applicant recites "characterized by using". Instead it should be "A pneumatic tire comprising a rubber composition" otherwise it reads as though it's a method of using a composition in a tire. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. The applicant claims and discloses the compressed DBP values in terms of ml/g. However, in the specification (paragraph 0044) it is stated that the compressed DBP is represented by ml/100g. The ml/100g unit is the normal unit of measurement used in the art to represent this value. Also, for carbon black to have a DBP of 95-200 ml/100g and a compressed DBP of 90-200 ml/g is physically impossible. For the purposes of applying prior art the examiner is taking the position the units for the compressed DBP are ml/100g.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi et al. (5,484,836), Chiung-Huei et al. (WO 91/13944), Amino et al. (6,058,994), and Kikuchi et al. (5,985,978).

8. Regarding claim 1: applicant claims a rubber composition comprising 10-250 parts by weight of carbon black per 100 parts of a rubber component. Kikuchi et al. teach a composition comprising 20-75 parts by weight carbon black per 100 parts of diene based rubber (column 2, lines 5-8). The also teach an embodiments that use 50 parts by weight of carbon black per 100 parts rubber (Table 1). Applicant also claims

the process by which the carbon black is made. This is a product by process limitation. Process limitations in product claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "In *re Thorpe* , 227 USPQ 964, 966 (Fed. Cir. 1985). Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. In *re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In *re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In *re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). There are no structural limitations related to the carbon black in this claim. The examiner notes that this process of producing carbon black using a production furnace having a combustion zone, reaction zone, and reaction stop zone coaxially connected together including a step of producing high temperature combustion gas through the combustion of hydrocarbon fuel in the combustion zone, a step of spraying a starting hydrocarbon in to the high temperature gas flow in the reaction zone to convert the starting hydrocarbon into carbon black through partial combustion or thermal decomposition reaction and a step of quenching the reaction in a

reaction stop zone is well known in the art. As an evidentiary reference see Chiung-Huei et al (page 5, line 23 to page 6, line 27).

9. Regarding claims 2 and 3: applicant claims more product by process limitations for the production of the carbon black. See previous paragraph for how these limitations are treated. There are no structural limitations present in these claims.

10. Regarding claim 4: applicant claims that the carbon black has a DBP of 40-250 ml/100g, a compressed DBP of 35-220 ml/g, and a CTAB of 70-200 m<sup>2</sup>/g. Kikuchi et al. teach using the particular carbon black Shoblack N220, which has a compressed DBP of 96 ml/100g and a CTAB of 110 (Table 3). They do not list the value for the DBP but the DBP of carbon black N220 is inherently within the applicant's range. Amino et al. is being used as an evidentiary reference to prove that Shoblack N220 is within the applicants range. Amino et al. teach that Shoblack N220 has a DBP of 111 ml/100g (column 7, lines 1-3).

11. Regarding claim 5: applicant claims that the carbon black has a DBP of 95-220 ml/100g and a compressed DBP of 90-200 ml/g. Kikuchi et al. teach using the particular carbon black N220, which has a compressed DBP of 96 ml/100g (Table 3). They do not list the value for the DBP but the DBP of carbon black N220 is inherently within the applicant's range. Amino et al. is being used as an evidentiary reference to prove that Shoblack N220 is within the applicants range. Amino et al. teach that Shoblack N220 has a DBP of 111 ml/100g (column 7, lines 1-3).

12. Regarding claim 6: applicant claims that the carbon black has a tinting strength  $>0.363 \times \text{CTAB} + 71.792$ . Kikuchi et al. teach a tinting strength of 115 for N220 (Table 3). 115 is greater than  $0.363 \times 110 + 71.792$ , which equals 112.
13. Regarding claim 9: applicant claims that the carbon black has a toluene tinting permeability of not less than 90%. Kikuchi et al. teach using Shoblack N220 (Table 3), which inherently meets this limitation. Kikuchi et al. (5,985,978) is being used as an evidentiary reference to prove that Shoblack N220 inherently meets this limitation. Kikuchi et al. (5,985,978) teach that Shoblack N220 has a toluene discoloration of 98% (Table II and column 4, lines 15-16). The toluene discoloration is the same as the toluene tinting permeability.

***Claim Rejections - 35 USC § 102/103***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kikuchi et al. (5,484,836)
16. Regarding claim 1: applicant claims a rubber composition comprising 10-250 parts by weight of carbon black per 100 parts of a rubber component. Kikuchi et al. teach a composition comprising 20-75 parts by weight carbon black per 100 parts of

diene based rubber (column 2, lines 5-8). The also teach an embodiments that use 50 parts by weight of carbon black per 100 parts rubber (Table 1). Applicant also claims the process by which the carbon black is made. This is a product by process limitation. Process limitations in product claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "In re Thorpe , 227 USPQ 964, 966 (Fed. Cir. 1985). Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). There are no structural limitations related to the carbon black in this claim. The examiner notes that this process of producing carbon black using a production furnace having a combustion zone, reaction zone, and reaction stop zone coaxially connected together including a step of producing high temperature combustion gas through the combustion of hydrocarbon fuel in the combustion zone, a step of spraying a starting hydrocarbon in to the high temperature gas flow in the reaction zone to convert the starting hydrocarbon into carbon black through partial



combustion or thermal decomposition reaction and a step of quenching the reaction in a reaction stop zone is well known in the art. As an evidentiary reference see Chiung-Huei et al (page 5, line 23 to page 6, line 27).

17. Regarding claims 2 and 3: applicant claims more product by process limitations for the production of the carbon black. See previous paragraph for how these limitations are treated. There are no structural limitations present in these claims.

18. Regarding claim 4: applicant claims that the carbon black has a DBP of 40-250 ml/100g, a compressed DBP of 35-220 ml/g, and a CTAB of 70-200 m<sup>2</sup>/g. Kikuchi et al. teach using the particular carbon black CB-2, which has a compressed DBP of 111 ml/100g and a CTAB of 95 (Table 3). They do not list the value for the DBP but the DBP of carbon black CB-2 is inherently within the applicant's range. The DBP test is conducted by determining the amount of liquid that is needed to just fill all the spaces between the aggregates when the aggregates are pulled together by the surface tension forces of the dibutyl phthalate. The crushed DBP test is conducted the same way as the DBP test except that the sample has been pre-compressed and then broken up four successive times. Therefore the crushed DBP value is always going to be lower than the DBP value. Therefore the DBP of CB-2 is greater than 111 ml/100g. The difference between the two tests is not great enough to cause the DBP value to go above 200.

19. Regarding claim 5: applicant claims that the carbon black has a DBP of 95-220 ml/100g and a compressed DBP of 90-200 ml/g. Kikuchi et al. teach using the particular carbon black CB-2, which has a compressed DBP of 111 ml/100g and a

CTAB of 95 (Table 3). They do not list the value for the DBP but the DBP of carbon black CB-2 is inherently within the applicant's range. The DBP test is conducted by determining the amount of liquid that is needed to just fill all the spaces between the aggregates when the aggregates are pulled together by the surface tension forces of the dibutyl phthalate. The crushed DBP test is conducted the same way as the DBP test except that the sample has been pre-compressed and then broken up four successive times. The crushed DBP value is always going to be lower than the DBP value. Therefore the DBP of CB-2 is greater than 111 ml/100g. The difference between the two tests is not great enough to cause the DBP value to go above 200.

20. Regarding claim 6: applicant claims that the carbon black has a tinting strength  $>0.363 \times \text{CTAB} + 71.792$ . Kikuchi et al. teach a tinting strength of 109 for CB-2 (Table 3). 109 is greater than  $0.363 \times 95 + 71.792$ , which equals 106.

21. Regarding claim 7: applicant claims that the carbon black has a tinting strength  $<0.363 \times \text{CTAB} + 71.792$  and  $\text{TINT} > 50$ . Kikuchi et al. teach using carbon black CB-1, which has a CTAB of 83 and crushed DBP of 111 (Table 3). CB-1 inherently meets the DBP limitation of claim 4 for the same reason as given above for CB-2. CB-1 has a tinting strength of 98 (Table 3). 98 is less than  $0.363 \times 83 + 71.792$ , which equals 102. 98 is also greater than 50.

22. Regarding claim 8: applicant claims that the hydrogen desorption ratio is greater than  $0.260 - 6.25 \times 10^{-4} \times \text{CATB}$ . Kikuchi et al. does not specifically teach this property for their N220. This is not a test that is usually used in the art to test the properties of carbon black. The examiner takes the position that CB-1 or CB-2 would inherently meet

this limitation. All four (DBP, compressed DBP, CTAB, and TINT) of the physical property tests taught by Kikuchi et al. meet the applicant's limitations. The applicant alleges that when the hydrogen desorption ratio does not meet this limitation that the wear resistance of the tire tread lowers and the heat build up becomes undesirable high (paragraph 0023). Kikuchi et al. are also concerned with wear resistance and heat build up of tire tread (column 1, lines 41-53). The values given in Tables 1 and 2 show that CB-1 and CB-2 provide both a low heat buildup and good wear resistance. If applicant's allegations are correct hydrogen desorption ratios of CB-1 and CB-2 must meet applicant's limitations otherwise the heat buildup and wear resistance values would have been bad. The examiner also notes that the applicant has not provided sufficient evidence to prove their assertion. There are no examples where all the other factors stay the same and only the hydrogen desorption ratio changes from meeting this limitation to not meeting this limitation. The applicant has failed to show that the hydrogen desorption ratio of the carbon black affects the physical structure of the rubber composition.

23. Regarding claim 9: applicant claims that the carbon black has a toluene tinting permeability of not less than 90%. Kikuchi et al. teach using CB-1 and CB-2 (Table 3), which inherently meets this limitation. The applicant alleges that when the toluene tinting permeability is less than 90% the wear resistance is undesirably deteriorated (paragraph 0024). Kikuchi et al. are also concerned with wear resistance of tire tread (column 1, lines 41-53). The values given in Tables 1 and 2 show that CB-1 and CB-2 provide good wear resistance. If applicant's allegations are correct the toluene tinting

permeability of CB-1 and CB-2 must be at least 90% otherwise the wear resistance values would have been bad. The examiner also notes that the applicant has not provided sufficient evidence to prove their assertion. There are no examples where all the other factors stay the same and only the toluene tinting permeability changes from below 90% to 90% or above. The applicant has failed to show that the toluene tinting permeability of the carbon black affects the physical structure of the rubber composition.

24. Regarding claim 10: applicant claims that the extraction amount with monochlorobenzene is not more than 0.15%. Kikuchi et al. teach CB-1 and CB-2 which inherently meet this limitation. The applicant alleges that when the extraction amount with monochlorobenzene exceeds 0.15% the wear resistance is undesirably deteriorated (paragraph 0024). Kikuchi et al. are also concerned with wear resistance of tire tread (column 1, lines 41-53). The values given in Tables 1 and 2 show that CB-1 and CB-2 provide good wear resistance. If applicant's allegations are correct the extraction amount with monochlorobenzene of CB-1 and CB-2 must not be more than 0.15% otherwise the wear resistance values would have been bad. The examiner also notes that the applicant has not provided sufficient evidence to prove their assertion. There are no examples where all the other factors stay the same and only the extraction amount with monochlorobenzene changes from at or below 0.15% to above 0.15%. The applicant has failed to show that the extraction amount with monochlorobenzene of the carbon black affects the physical structure of the rubber composition.

***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (5,484,836) in view of Amino et al (6,058,994).

27. Applicant claims that what is listed above and that their rubber composition is in the tread of a pneumatic tire. Kikuchi et al. teach using their rubber composition in low fuel consumption tire tread (column 1, lines 6-11).

28. While one would normally expect they are using their composition in pneumatic tires since pneumatic tires are used in vehicles that fuel consumption is a concern, they fail to specifically teach a pneumatic tire where the tread contains their composition.

29. Amino et al. teach a rubber composition that contains carbon black (column 6, line 64 to column 7, line 3) and is used as a tread in a pneumatic tire (column 1, lines 7-11).

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rubber composition of Kikuchi et al. in the tread of a pneumatic tire to make a pneumatic tire that provided low fuel consumption.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Uselding whose telephone number is (571)270-5463. The examiner can normally be reached on Monday-Thursday 6:00a.m. to 4:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/  
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